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OFFICE OF NAVAL RESEARCH
PUBLICATION/PATENTS/PRESENTATION/HONORS REPORT
for
1 October 1992 through 30 September 1993

R&T Number: S400004SRB10
Grant Number: N00014-91-J-4063
Grant Title: Communications Networks in Stressed Environments

Principal Investigator: Stephen S. Rappaport
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Co-Investigator: Thomas G. Robertazzi

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S E D

- a. Number of papers submitted to refereed journals but not yet published: 12
- b. Number of papers published in refereed journals: (list attached) 2
- c. Number of books or chapters submitted but not yet published: 1
- d. Number of books or chapters published: (list attached) 2
- e. Number of printed technical reports & non-refereed papers: (list attached) 13
- f. Number of patents filed: (list attached) 1
- g. Number of patents granted: (list attached) 0
- h. Number of invited presentations at workshops or professional society meetings. 3
- i. Number of presentations at wkshps or prof. soc. meetings. (list attached) 2
- j. Honors/Awards/Prizes for Contract/Grant Employees: (List attached).
(Includes scientific soc. awards/offices, Promotions, Faculty Award/Offices). 15
- k. Total number of graduate students and post-docs supported at least 25%
this year on this contract, grant:

	grad students	<u>5</u>	and post docs	<u>0</u>
grad student female		0		
grad student minority		0		
grad student Asian e/n		5		
post-doc female		0		
post-doc minority		0		
post-doc Asian e/n		0		

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PUBLICATIONS, PATENTS, PRESENTATIONS, AND HONORS REPORT

Notes:

- ☒ partially supported by U.S. National Science Foundation under Grant No. NCR 90-25131.
☐ acknowledges Grant of access and cpu time from Cornell National Supercomputing Facility

b. Papers Published in Refereed Journals

- [1] I.H. Chung and S.S. Rappaport, "Diversity Reservation Aloha," *International Jour. of Satellite Communications*, vol. 10, Oct. 1992, pp.47-60.
- [2] J. Shor and T.G. Robertazzi, "Traffic-Sensitive Algorithms and Performance Measures for the Generation of Self-Organizing Radio Network Schedules", *IEEE Transactions on Communications*, Vol. 41, No. 1, Jan. 1993, pp. 16-21.

d. Books or Chapters Published

- [1] S.S. Rappaport, "Communications Traffic Performance for Cellular Systems with Mixed Platform Types," pp. 177-201, in *Wireless Networks: Future Directions*, Kluwer Academic Publishers: Boston, 1993. ☒
- [2] T.G. Robertazzi, editor, *Performance Evaluation of High Speed Switching Fabrics and Networks: ATM, Broadband ISDN and MAN Technology*, April 1993, IEEE Press, Piscataway N.J., 450 pages.

e. Technical Reports and Non-Refereed Papers

- [1] H. Jiang and S.S. Rappaport, "CBWL: A New Channel Assignment and Sharing Method for Cellular Communication Systems," CEAS Technical Report No. 651, January 7, 1993, College of Engineering and Applied Sciences, State University of New York, Stony Brook, NY 11794. ☒
- [2] T-P. Chu and S.S. Rappaport, "Generalized Fixed Channel Assignment with Hand-Off Priority in Micro-Cellular Communication Systems," CEAS Technical Report No. 652, January 7, 1993, College of Engineering and Applied Sciences, State University of New York, Stony Brook, NY 11794. ☒
- [3] C. Purzynski and S.S. Rappaport, "Traffic Performance Analysis for Cellular Communication Systems with Mixed Platform Types and Queued Hand-Offs," CEAS Technical Report No. 653, January 7, 1993, College of Engineering and Applied Sciences, State University of New York, Stony Brook, NY 11794. ☒
- [4] H. Jiang and S.S. Rappaport, "CBWL for Sectorized Cellular Communications," CEAS Technical Report No. 654, January 7, 1993, College of Engineering and Applied Sciences, State University of New York, Stony Brook, NY 11794. ☒

- [5] H. Jiang and S.S. Rappaport, "CBWL with Fast Channel Returning: A Scheme for Channel Sharing in Cellular Communications," CEAS Technical Report No. 655, January 7, 1993, College of Engineering and Applied Sciences, State University of New York, Stony Brook, NY 11794. ■
- [6] S.S. Rappaport, "Traffic Performance of Cellular Communication Systems with Mixed Platform and Call Types," CEAS Technical Report No. 656, January 7, 1993, College of Engineering and Applied Sciences, State University of New York, Stony Brook, NY 11794. ■
- [7] H. Jiang and S.S. Rappaport, "Prioritized Channel Borrowing without Locking: A Channel Sharing Strategy for Cellular Communications," CEAS Technical Report No. 657, January 7, 1993, College of Engineering and Applied Sciences, State University of New York, Stony Brook, NY 11794. ■
- [8] L.R. Hu and S.S. Rappaport, "Performance Analysis of Micro-Cellular Communication Systems with Hierarchically Overlaid Macro-Cells," CEAS Technical Report No. 658, January 7, 1993, College of Engineering and Applied Sciences, State University of New York, Stony Brook, NY 11794. ■
- [9] N.P. Newman and S.S. Rappaport, "Analysis of Multimedia PCN Medium Access Control in a Mixed Traffic Environment," CEAS Technical Report No. 659, January 7, 1993, College of Engineering and Applied Sciences, State University of New York, Stony Brook, NY 11794.
- [10] S.S. Rappaport, "Traffic Performance for Cellular Communication Systems with Mixed Platforms and Imperfect Hand-Off Initiation," CEAS Technical Report No. 660, January 13, 1993, College of Engineering and Applied Sciences, State University of New York, Stony Brook, NY 11794. ■□
- [11] J.-W. Jeng and T.G. Robertazzi, "Buffer Management in Discrete Time Multiclass Models with Applications to High Speed Switching", SUNY at Stony Brook College of Engineering and Applied Science (CEAS) Technical Report 643, Oct. 22, 1992.
- [12] J. Sohn and T.G. Robertazzi, "Optimal Load Sharing for a Divisible Job on Bus Networks", SUNY at Stony Brook College of Engineering and Applied Science (CEAS) Technical Report 649, Dec. 16, 1992.
- [13] J. Sohn and T.G. Robertazzi, "A Multi-Job Load Sharing Strategy for Divisible Jobs on Bus Networks", SUNY at Stony Brook College of Engineering and Applied Science (CEAS) Technical Report 665, April 16, 1993.

f. Patents Filed

- [1] S.S. Rappaport and H. Jiang, "CBWL: A New Channel Assignment and Sharing Method for Cellular Communication Systems," (Patent filed February 1, 1993.) ■

i. Presentations at Workshops and Professional Society Meetings

- [1] H. Jiang and S.S. Rappaport, "CBWL: A New Channel Assignment and Sharing Method for Cellular Communication Systems, Proc. IEEE Vehicular Technology Conference, VTC '93, Secaucus, New Jersey, May 18-20, 1993, pp. 189-193. ■

- [2] T.P. Chu and S.S. Rappaport, "Generalized Fixed Channel Assignment with Hand-Off Priority in Micro-Cellular Communication Systems," Proc. IEEE Vehicular Technology Conference, VTC '93, Secaucus, New Jersey, May 18-20, 1993, pp. 607-610. ■□
- [3] C. Purzynski and S.S. Rappaport, "Traffic Performance Analysis for Cellular Communication Systems with Mixed Platform Types and Queued Hand-Offs," Proc. IEEE Vehicular Technology Conference, VTC '93, Secaucus, New Jersey, May 18-20, 1993, pp. 172-175. ■
- [4] N.P. Newman and S.S. Rappaport, "Analysis of Multimedia PCN Medium Access Control in a Mixed Traffic Environment," Proc. IEEE International Conference on Communications, ICC '93, Geneva, May 23-26, 1993, pp. 177-181. ■
- [5] H. Jiang and S.S. Rappaport, "CBWL for Sectorized Cellular Communications," Proc. 5th Intl. Conf. on Wireless Communications, Wireless '93, Calgary Alberta, Canada, July 12-14, 1993, pp. 503-508. ■
- [6] J.-W. Jeng and T.G. Robertazzi, "Buffer Management in Discrete Time Multiclass Models with Applications to High Speed Switching", Proceedings of the 1993 Conference on Information Sciences and Systems, The Johns Hopkins University, Baltimore MD, March 1993.
- [7] J. Sohn and T.G. Robertazzi, "Optimal Load Sharing for a Divisible Job on a Bus Network", Proceedings of the 1993 Conference on Information Sciences and Systems, The Johns Hopkins University, Baltimore MD, March 1993.
- [8] E. Foo and T.G. Robertazzi, "Packet Train Traffic in the Manhattan Street Network Using Deflection Routing," Second Intl. Conf. on Computer Communications and Networks, San Diego, CA, June 1993, pp. 274-278.
- [9] S. Bataineh, T. Hsiung and T.G. Robertazzi, "Closed Form Solutions for Bus and Tree Networks of Processors Load Sharing a Divisible Job," 1993 Intl. Conf. on Parallel Processing, Chicago, Illinois, Aug. 1993.

Statement A per Telecon
 Dr. Rabinder Madan ONR/Code 111-
 Arlington, VA 22217-5000

NW - 23 Aug 93

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j. Honors/Awards/PrizesS.S. Rappaport

- [1] IEEE Communications Society - Nominations and Elections Board (to Dec. 1992).
- [2] IEEE Communications Society - Fellow Evaluation Board, March 1991- pres.
- [3] IEEE Long Island Section - Awards Nomination Committee, June 1988 - June 1993.
- [4] Nominated and Selected for IEEE Communications Society, Distinguished Lecturer Panel. July 1992 - July 1995.
- [5] NSF Review Panels
- [6] Technical Program Committee, 1993 IEEE Vehicular Technology Conference, May 1993, Secaucus, NJ.
- [7] Session Organizer, IEEE Globecom '93 Houston, December 1993.
- [8] SUNY Stony Brook, University Senate, Fall 1992 & Spring 1993.
- [9] Editorial Board, *Wireless Networks*

T.G. Robertazzi

- [1] Graduate Program Director, Dept. of Electrical Engineering, SUNY Stony Brook, January 1, 1992 - pres.
- [2] Session Organizer (with W. Tang), "Performance Evaluation of High Speed Networks", International Conference on Communications, Geneva, Switzerland, May 1993.
- [3] SUNY Stony Brook, University Graduate Council, Spring 1993.
- [4] Member Technical Program Committee, Infocom '93.
- [5] Member Technical Program Committee, IC3N '93.
- [6] Editorial Board, *Wireless Networks*